



ENGG300

Engineering Project Practices

S1 Day 2014

Dept of Engineering

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General Information

Unit convenor and teaching staff

Unit Convenor

Michael Heimlich

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Contact via michael.heimlich@mq.edu.au

Credit points

3

Prerequisites

(39cp including ENGG200(P)) and (admission to BE or BEBA or BEBBA or BEBCom or BEBSc)

Corequisites

Co-badged status

Unit description

This unit develops skills required for professional practice in engineering, particularly self-learning, collaborative problem solving, and communication. The vehicles for skills development include a research project, written report and oral presentation.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Working knowledge of the engineering process and the associated documents.

Demonstrate competency in the use of documentation-related software to produce engineering documents.

Practical use of standard engineering work products for communication and documentation of the engineering process.

Experience in executing a complete, professional engineering process as an individual within an engineering team.

Ability to analyse, build and measure simple simulations or models of more complex engineering systems.

Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Assessment Tasks

Name	Weighting	Due
<u>Notebook</u>	5%	final report submission
<u>Mixed Assignments</u>	10%	per iLearn
<u>Requirements Document</u>	15%	Week 5
<u>Project Proposal Document</u>	15%	Week 8
<u>Design Document</u>	20%	Week 10
<u>Oral Report</u>	5%	Weeks 12 and 13
<u>Final Report</u>	30%	Week 13

Notebook

Due: **final report submission**
Weighting: **5%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.

Mixed Assignments

Due: **per iLearn**
Weighting: **10%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce engineering documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.

Requirements Document

Due: **Week 5**

Weighting: **15%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce engineering documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.

Project Proposal Document

Due: **Week 8**

Weighting: **15%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce engineering documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Design Document

Due: **Week 10**

Weighting: **20%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce engineering documents.

- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Oral Report

Due: **Weeks 12 and 13**

Weighting: **5%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Final Report

Due: **Week 13**

Weighting: **30%**

On successful completion you will be able to:

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce engineering documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Ability to analyse, build and measure simple simulations or models of more complex

engineering systems.

- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Delivery and Resources

This offering is substantially on-line, compared to previous years.

There will be a number of pre-recorded lectures available on iLearn. The lectures will be made available in each week according to the topics that are to be covered in the corresponding week.

Notes (including tutorial questions) for mixed sessions will be available in the iLearn online system for download.

You will be required to make extensive use of the library and on-line technical and professional resources.

Access to a computer with office/documentation software is critical. LaTeX is highly recommended.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Late Reports

Late reports will receive no credit but will still be required to achieve a passing grade. This penalty does not apply for cases in which an application for special consideration is made and approved. Wherever possible, these must be arranged with the unit convenor **prior** to the due date.

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Experience in executing a complete, professional engineering process as an individual

within an engineering team.

- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Assessment tasks

- Mixed Assignments
- Requirements Document
- Project Proposal Document
- Design Document
- Final Report

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce

engineering documents.

- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Assessment tasks

- Notebook
- Mixed Assignments
- Requirements Document
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- Design Document
- Oral Report
- Final Report

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Demonstrate competency in the use of documentation-related software to produce engineering documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Assessment tasks

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- Requirements Document
- Project Proposal Document
- Design Document
- Final Report

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Experience in executing a complete, professional engineering process as an individual within an engineering team.
- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Assessment tasks

- Mixed Assignments
- Design Document
- Final Report

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Working knowledge of the engineering process and the associated documents.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.

- Ability to analyse, build and measure simple simulations or models of more complex engineering systems.
- Demonstrate competency in the decomposition of a large problem into smaller problems and the role of solution alternatives and contingency planning.

Assessment tasks

- Mixed Assignments
- Design Document
- Final Report

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Working knowledge of the engineering process and the associated documents.
- Demonstrate competency in the use of documentation-related software to produce engineering documents.
- Practical use of standard engineering work products for communication and documentation of the engineering process.
- Experience in executing a complete, professional engineering process as an individual within an engineering team.

Assessment tasks

- Notebook
- Mixed Assignments
- Requirements Document
- Project Proposal Document
- Design Document
- Oral Report
- Final Report